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Sharpen Your Supply Chain

Determining Your Fit: Warehouse Considerations in Microsoft Dynamics AX 2012 R3

If you're considering a switch to Microsoft Dynamics AX 2012 R3, evaluating its capabilities and complexities is a must. AX 2012 R3 comes with a variety of options, so determining a strategy on how to best utilize the software is essential. In fact, there are key setup elements, like activating advanced warehouse management (WHS) in a specific warehouse, which cannot be changed once initiated, so you want to ensure all considerations have been reviewed before implementation. Here are the top factors to consider to ensure you have a smooth and painless process.

Operational Complexity

Order fulfillment Strategy

Your desired order fulfillment strategy should be well defined in order to determine whether AX 2012 R3 is right for your needs. Several picking methodologies can be applied during the fulfillment process. For example, if you're running a simple operation, then AX 2012 R3 WMS I capabilities are sufficient. But if you're looking for more operational control, some key WMS II features should be considered, as they provide essential functions while minimizing the level of effort during system setup, maintenance, and overall project timeline.

While WMS II is not supported past its current release, many AX customers have been successful with the functionality provided by R3. For more complicated approaches, or if there's a need for system-directed operations, AX 2012 R3 WHS is an excellent option. The table below provides some guidance:

Functional Considerations	**WMS I**	**WMS II**	**WHS**
Basic Order Picking	X	X	X
Basic Order Staging		X	X
Basic Order Loading		X	X
Order Consolidation		X	X
Outbound Pallets		X	
License Plating			X
Wave Management			X
Multi-step Staging			X
Cluster (cart) Picking			X
Batch Case Picking			Gap

AX 2012 R3 features Location Directives, which helps identify user-defined pick and put locations for inventory movement. This feature offers the flexibility of a simple setup, or a more sophisticated approach that makes system-wide decisions to leverage zones, location profiles, or other criteria that are key to operational efficiencies. These are also critical to system performance, regardless of the R3 option you choose.

How your WHS determines location capacity must also be considered. You will want to decide whether to leverage usable dimensions or a specific location volume to determine capacity. To do that, you may need to import the height, width, and depth of each location. With this data, even if your operation is able to gather all dimensions for a product, the Location Directive Engine will need time to calculate location volume, which can lead to performance degradation. Leveraging stocking limits by item or pack-size category may provide a compromise between detailed dimensional data and more effective putaway methods.

Sales Reservation Strategy

Your sales reservation strategy, like order fulfillment, will have an impact on your decision. We have found the reservation process within Dynamics AX to be challenging, and it becomes more complex when you need to track batches or other detailed item variants. While basic order-picking in WMS I or WMS II is effective for many organizations, if you need a flexible reservation that isn't tied to the location, that indicates the need for WHS.

This provides you the ability to reserve without tying up a particular location, batch, or serial number. This is a more effective way to manage reservations within the system-directed program.

License Plating

License Plating is a requirement for WHS, making it another feature to consider in your decision-making process.

License plating can be used to track inventory in more detail (like bulk locations, staging areas, etc). This is also necessary for effective system-directed concepts (unless a list is provided for Work ID). Keep in mind that the use of license plating can be turned on at a location profile level. License plates can also be created behind the scenes, which may be more useful in some scenarios.

If you don't need License Plating, Pallet ID dimensions can be used for basic product movement within AX 2012 R3 functionality for WMS II. The 'Picking Pallet' approach for pick routes also provides some fundamental warehouse functionality. Note, if you plan to use the 'Picking Pallet' approach, AX 2012 R3 WHS provides item dimensions leveraging license plating (rather Pallet ID) data.

Operational Culture

User-Directed vs. System-Directed

As with any operation, it's important to understand the operational culture; some are driven by simpler processes and user-based decisions, while others are fully automated and direct warehouse personnel on every move. In our experience, implementing a system-directed solution like WHS without a culture that effectively embraces system decisions can lead to failure. Having executive leadership and on-floor management involved in these decisions is critical.

While AX 2012 R3 WHS was designed to be fully automated and direct all warehouse personnel, there are simpler approaches for system implementation. A simpler approach gives warehouse personnel more flexibility, however, if the system is set up for full operational optimization, then a simpler implementation may lose a number of key features.

Implementation Approach & Cost

AX 2012 R3 was designed with embedded WMS capabilities, as such, WMS I and WMS II take a relatively small amount of effort to implement, a few days or weeks to complete depending on the functionality and operational complexity selected. The effort for a WHS implementation takes between 700 to 1,500 service hours as it was originally designed with WMS capabilities in mind, leading to a more time-consuming setup.

TMS Considerations

Transportation capabilities also factor into the decision-making process. While AX 2012 R3 was not designed as a full-blown Transportation Management System (TMS) it does have reliable transportation execution functionality. Some features include rating, routing, freight reconciliation, and appointment scheduling.

Because the line between WMS and TMS is blurred, you can still leverage the Load Building Workbench without any significant TMS setup. Alternatively, you can use rating capabilities within a TMS without the need to implement a WHS.

We've found that AX 2012 R3 underdelivers in parcel-labeling and manifesting. At this time, though Microsoft has access to the code with rate engines as well as the integration necessary for rate retrieval from other systems (like FedEx, UPS, or ConnectShip Toolkit through Progistics AMP) it's not available in any upcoming release. The code, however, has been made accessible to the partner community by Microsoft through Partner source.

Hardware Considerations

Hardware is another critical aspect that is often forgotten during the decision-making process. As an enabling component, there are intricate operational details to consider. These of course include technology and hardware selection, but also site surveys, connectivity, labeling requirements, warehouse media/signage, and printing.

Basic RF technology is included in the AX 2012 R3 WHS system cost, however, telnet isn't supported, which means customers with older hardware will need to buy new devices. Plus, basic RF doesn't support barcode parsing, and provides limited labeling capabilities.

In short, AX 2012 R3 introduces license plating, system-directed rule engines, and a flexible reservation hierarchy. This added functionality increases the need for operational warehouse knowledge and experience during implementation.

These are just a few considerations to get you started. There are a plethora of other factors to evaluate when implementing a system, but addressing these early on is a great place to start. For a deeper look into AX 2012 R3 and your specific needs, or if you have any questions, reach out to Brian Carlson at bcarlson@cornerstone-edge.com or 888-335-3343 x502.

Important note: The details noted above are based upon Dynamics AX R3 CU7. Additional fixes and features may be added by Microsoft in future releases over time.